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Two new genera and new species of Mezirinae from Mauritius (Heteroptera, Aradidae)

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A b s t r a c t : From the Mascarene Island of Mauritius, the micropterous taxon *Mauricicoris dilatatus* gen.nov., spec.nov. and the apterous *Jacobsapta pilicornis* gen.nov., spec.nov. are described and illustrated.

K e y w o r d s : Heteroptera, Aradidae, Mezirinae, apterous, micropterous, new genus, new species, Africa, Mauritius.

Introduction

The Mascarene Islands comprising Mauritius, Reunion and Rodrigues are situated about 1000 km east of Madagascar. They are of volcanic origin with mountains raising up to 3000 m (Reunion), 840 m (Mauritius) and 396 m (Rodrigues) respectively and their slopes were covered with dense evergreen forest. These forests have virtually disappeared on Mauritius and Rodrigues due to extensive cutting for cultivations and only few patches of indigenous forest are still existing there.

This reflects the poor number of Aradidae recorded from this archipelago, in particular from Mauritius, whereas from Madagascar 24 genera and 60 species are described (HOBERLANDT 1957, 1963; KORMILEV & FROESCHNER 1987; HEISS 1997, 1998, 1999). From Mauritius 3 genera with the following species are known:

- *Breviscutaneurus angustus* (BERGROTH 1914)
- *Neuroscstenus caffer* (STAL 1855)
- *Neuroctenus mauricii* HOBERLANDT 1957
- *Brachyrhynchus mauricii* (HOBERLANDT 1957)

The two last taxa are supposed to be endemic to this island.

Investigation in such remnants of formerly extended evergreen forests in Mauritius resulted in the discovery of hitherto unknown apterous and micropterous genera and species of the flat bug family Aradidae, which are described and illustrated below.

Material and Methods

The specimens were collected in two localities on and under twigs and logs of leaf trees,

laying on the ground, infested by fungi in rather humid conditions. Species of both new taxa were partly found on the same log, where they are perfectly camouflaged and difficult to detect. Even when disturbed, they are slowly moving and due to their low vagility, their range of distribution is limited to restricted areas, a condition under which endemism developed.

Abbreviations used in the text:

Deltgdorsal external laterotergite (connexivum)

Mtg.....mediotergite

Vltgventral laterotergite

Measurements are given in millimeters or 20 units equal to 1 mm.

Depositories of type specimens

Tiroler Landesmuseum, collection of the author (Innsbruck).....	CEHI
D.H. Jacobs (Pretoria)	DHJP
American Museum of Natural History (New York).....	AMNH
The Natural History Museum (London).....	BMNH
National Museum of Natural History (Prague)	NMPC
Muséum National d' Histoire Naturelle (Paris).....	MNHN
Oberösterreichisches Landesmuseum (Linz).....	OLML
Naturhistorisches Museum (Wien).....	NHMW
United States National Museum of Natural History (Washington)	USNM
Zoological Institute, Russian Academy of Sciences (St. Petersburg).....	ZMAS

Systematics

***Mauricicoris* gen.nov.**

Type species: *Mauricicoris dilatatus* spec.nov.

Description

Micropterous, body elongate oval in female, strongly dilated posteriorly in male. Colour reddish brown with yellowish areas on metanotum and abdomen. Surface mat without pilosity.

H e a d : Slightly longer than wide, clypeus and genae as long as blunt antenniferous lobes, which are diverging anteriorly. Eyes subglobular, not protruding, postocular lobe rounded. Antennae $2.2 \times$ as long as head width, first segment thickest, second shorter and more slender, third longest and thinnest, fourth fusiform as long as second. Rostrum arising from a slit like atrium, rostral groove deep, closed posteriorly.

T h o r a x : P r o n o t u m : Trapezoidal with a distinct collar, lateral margins slightly reflexed and sinuate, anterolateral angles projecting anteriorly. Disk with longitudinal rugosities, which are delimited posteriorly by a transverse sulcus. Posterior margin sinuate.

M e s o n o t u m : Triangular, about $2.5 \times$ as wide as long, anterior and lateral margins

concave, surface irregularly rugose. Fore wings reduced to small oval wingpads laterad of mesonotal sclerite.

M e t a n o t u m : Fused with Mtg I and II, consisting of 2 (1+1) transverse lateral plates which are depressed along the mesonotum. Mtg I marked by an oval elevation on inner posterior margin, separated from Mtg II by a distinct transverse furrow which is interrupted medially. Surface of metanotal plates with deep punctures on posterior half, smooth elsewhere, that of Mtg I and Mtg II rugose.

A b d o m e n : Tergal disk (fused Mtg III-VI) wider (δ) or subequal (φ) its length, flat, only slightly elevated medially on Mtg III-V. Glabrous impressions marked by deep punctures, the submedian ones placed at middle of a rhomboidal area which is also delimited by deep punctures. Deltg II + III fused, triangular; posterolateral angles of Deltg III-IV not projecting, those of Deltg V-VII angularly protruding laterally in male, only slightly enlarged and rounded in female. Mtg VII in male moderately raised medially for the accomodation of the pygophore. Paratergites VIII subparallel with rounded apex. Mtg VII in female flat, paratergites VIII sinuate laterally.

V e n t e r : Pro-, meso- and metasternum flat and smooth, meso- and metasternum and sternites II-VII with a triangular flat depression medially. Metapleural scent gland canal prominent and slit like, extending to lateral margin, slightly visible from above laterad of wingpads. Spiracles II-IV ventral, V and VI sublateral, the latter visible from above in female, VII+VIII lateral and also visible from above in both sexes.

L e g s : Femora incrassate medially, fused to trochanters which are delimited by deep distinct sutures. Tibiae cylindrical, protibial comb present. Tarsi two - segmented, claws with curved pseudopulvilli and two bristle like parempodia.

G e n i t a l i c s t r u c t u r e s : δ . Pygophore pyriform, flattened and rugose dorsally, carinate on anterior midline. Parameres flat, hook shaped. φ . Spermatheca of pentatomoid type with subspherical bulb, pump and short duct which is inserted at the tip of the vagina.

E t y m o l o g y : Named after the island of Mauritius.

D i s c u s s i o n : This genus resembles somewhat the Mezirinae genus *Classeyana* HOBERLANDT 1963, described from Madagascar, from which it differs however at first view by other shape of head and different fusion pattern of thoracal sclerites. *Mauricicoris* is the first micropterous Mezirinae recorded so far from Madagascar and Mascarene Islands area.

***Mauricicoris dilatatus* spec.nov. (Fig. 1-8, photo 1, 2, 5)**

M a t e r i a l e x a m i n e d : Holotype δ , Mauritius SW, Black River Distr., Road Chamarel – Le Pétrin 400m, 22.-25.XI.2000 lg. E. Heiss (CEHI); paratypes 70 δ 80 φ labelled as holotype (CEHI, DJP, AMNH, BMNH; NMPC, NMHN, OLML, NHMW, USNM, ZMAS); further paratypes 15 δ 6 φ , Mauritius N, Pamplemousse Distr., Montagne de la Nicolière, 27.XI.2000 lg. E. Heiss (CEHI).

D e s c r i p t i o n :

Male, micropterous. Colour reddish brown, yellowish are a longitudinal spot on mesonotum, the posterolateral angles of Deltg II-VII, sometimes the yellowish colour is extending to half of Deltg V and VI, further a longitudinal band along the lateral margins

of tergal plate incorporating the darker sublateral glabrous spots. Females are usually darker than males. Posterolateral angles of Vltg II-VII are also yellowish.

H e a d : Fig. 6. Slightly longer than wide across eyes (19 / 16.5). Clypeus short, genae not exceeding apex of clypeus anteriorly. Antenniferous lobes as long as clypeus, diverging anteriorly, apices rounded. Antennae 2.2 × as long as head width, segment I thickest, curved at base, II more slender, slightly tapering towards base, III longest and thinnest, cylindrical, IV fusiform with pilose apex; relative length of segments I / II / III / IV = 18 / 13 / 29 / 13. Eyes subglobular, recessed. Vertex with a wide granular ridge, delimited anteriorly by a V-shaped, laterally by longitudinal grooves. Postocular lobes evenly rounded towards constricted neck region.

T h o r a x : **P r o n o t u m :** Trapezoidal, more than twice as wide as long (31 / 12), lateral margins reflexed and sinuate on anterior ¼, straight and diverging on posterior ¾. Anterolateral angles rounded, protruding anteriorly over collar, the latter carinate, deeply concave medially. Disk flat with 2 (1+1) sublateral longitudinal carinae and rugosities between them, delimited posteriorly by a deep transverse sulcus. Posterior margin sinuate and slightly carinate.

M e s o n o t u m : Triangular, 2.5 × as wide as long (30 / 12) with anterior and lateral margins sinuate. Surface irregularly rugose, slightly raised along midline. Fore wings are reduced to small wingpads lateral of mesonotal plate.

M e t a n o t u m : The 2 (1+1) transverse plates are fused to Mtg I + II; Mtg I discernible as flat oval elevations on inner posterior angles, Mtg II is separated by a transverse suture, which is interrupted at middle.

A b d o m e n : Tergal plate subrectangular, slightly elevated at middle of Mtg IV-V; abdominal scent glands strongly displaced posteriorly on Mtg III-V. Deltg I+II fused, triangular, reaching wing pads anteriorly. Lateral margin of Deltg III-IV straight, those of Deltg V-VII dilated laterally, their posterolateral angles protruding.

V e n t e r : Structures as described for the genus; sternite VII posteromedially roundly projecting, transversely rugose, smooth on anterior half.

M a l e g e n i t a l i a : Pygophore with an unusual short anterior portion, which is concealed by tergite VII when retracted (fig. 7, 8); surface rugose laterad of median ridge, finely granulate on posterior rounded lobe. Parameres as fig. 1-4.

F e m a l e : Generally as male, of larger size and posterolateral angles of Deltg V-VII are rounded and not expanded laterally. Tergite VIII wide and transverse with spiracles VIII placed on lateral rounded lobes. Spermatheca as fig. 5.

M e a s u r e m e n t s : Holotype ♂. Length 5.2 mm; width pronotum 1.55 mm; width of abdomen across Deltg II, III 2.45 mm, IV 2.6 mm, V 2.9 mm, VI 2.6 mm; ratio antennae / head width 2.21. Variation of length in paratypes ♂: 5.15-5.40 mm. Paratypes ♀: Length 5.3-6.2 mm.

E t y m o l o g y : Named for its dilated abdomen of the male.

R e m a r k s : This species was found in aggregations feeding on fresh fungi associated with few larval stages but together with the other new taxon described below.

Jacobsaptera gen.nov.

Type species: *Jacobsaptera pilicornis* spec.nov.

D e s c r i p t i o n :

Apterous, body oval, surface mat with fine yellowish adherent pilosity and long erect

bristles on antennae, femora, tibiae and lateral margins of head and thorax. Colour uniformly reddish brown with yellowish posterolateral angles of Deltg III-VII.

H e a d : Of triangular outline, about as long as wide. Clypeus and genae short, slightly longer than antenniferous lobes, which are broad, diverging laterally, apices acute. Antennae about $2.2 \times$ as long as head width, segment I thickest and longest, II shorter and more slender, III thinnest, IV fusiform. Rostrum shorter than head, arising from a slit like atrium, rostral groove deep and closed posteriorly. Eyes large and globular; postocular lobes sinuate anteriorly, neck strongly constricted.

T h o r a x : P r o n o t u m : About $3 \times$ as wide as long; collar prominent, ring like; lateral margins rounded anteriorly, constricted posteriorly. Disk with a flat median ridge, which is connected posteriorly with the transverse carinate posterior margin, laterad with irregular rugosities.

M e s o n o t u m : Triangular, anterior margin concave, lateral margins nearly straight, their apices knob like; disk smooth, roundedly elevated at middle with 2 (1+1) tubercles anteriorly.

Margin excised to accommodate the prominent laterally visible metapleural scent gland canals, delimited posteriorly by a knob like tubercle; inner margin separated from Mtg I by a deep sulcus. Surface smooth, moderately elevated.

A b d o m e n : Tergal plate pentagonal, consisting of fused Mtg I-VI; fusion line of Mtg I-II is marked by a distinct suture which is interrupted medially; anterior margins of Mtg III-VI by a curved line of deep punctures. Deltg I+II fused; posterolateral angles of Deltg III-VII progressively protruding and angularly rounded; Mtg VII raised medially in male for the accomodation of the pygophore, flat in female.

V e n t e r : Meso- and metasternum flat, the first with a median round depression; metapleural scent gland canals distinct, extending to lateral margins where they are visible from above. Sternites III-VII separated by deep sulci, the surface is irregularly rugose. Spiracles II-IV ventral, V-VII lateral and visible from above, VIII apical and also visible.

L e g s : Femora slightly incrassate, tibiae cylindrical, tarsi 2-segmented; protibial comb present, claws with thin pseudopulvilli and setiform parempodia.

G e n i t a l i c s t r u c t u r e s : ♂. Pygophore with large dorsal opening, posterior exposed portion triangular from above. Parameres with setigerous excavations on inner face.

♀. Spermatheca of pentatomoid type with subspherical bulb, pump and short duct which is not inserted at the tip of the vagina.

E t y m o l o g y : Named after my friend D.W. Jacobs (Pretoria) in recognition of his excellent contributions to the subsaharan Aradid fauna.

D i s c u s s i o n : The apterous condition and the pattern of fused thoracal and abdominal plates is unique among the known Aradid fauna of Indian Ocean Islands east of Africa (Madagascar, Mascarenes, Comores, Seychelles).

***Jacobsaptera pilicornis* spec.nov. (Fig. 9-14, photo 3, 4, 6)**

M a t e r i a l e x a m i n e d : Holotype ♂, Mauritius N, Pamplemousse Distr. Montagne de la Nicolière, 27 XI 2000 lg. E. Heiss (CEHI); paratypes 2♂♂ 3♀♀ collected with holotype, 24♂♂ 30♀♀ Mauritius SW, Black river Distr., Road Chamarel – Le Pétrin 400m, 22.-25.XI.2000 lg E. Heiss (CEHI, DJP, AMNH, BMNH; NMPC, NMHN, OLML, NHMW, USNM, ZMAS).

D e s c r i p t i o n :

Male, apterous, mat with fine yellowish adherent pilosity. Erect bristles of antennae longer than the diameter of antennal segments, also long on femora tibiae and lateral margins of head and thorax. Colour dark reddish brown with paler yellowish postero-lateral angles of Deltg III-VII, which are also yellowish on ventral side.

H e a d : Fig. 13. Slightly longer than wide (19 / 18). Clypeus short, triangular, genae thin reaching apex of clypeus. Antenniferous lobes large and diverging anteriorly, apex acute. Eyes large and globular; postocular lobes sinuate anteriorly, neck strongly constricted. Vertex granulate, deeply depressed laterally. Antennae about 2.2 × as long as head width (39.5 / 18), segment I longest and thickest, II more slender and shorter, II second longest but thinnest, IV shorter and fusiform. Relative length of antennal segments I / II / III / IV = 26 / 16 / 24 / 13.

T h o r a x : **P r o n o t u m :** 2.8 × wider than long (28 / 10), collar distinct, ring like; lateral margins rounded, anterolaterally not protruding over collar; disk with a median carina which is connected with convex carinate posterior margin, laterad with rugose ridges and a larger smooth elevation bordering the lateral margin.

M e s o n o t u m : Triangular, about 3 × as wide as long (31 / 10), laterally ending in knob like tubercles. Surface smooth, medially slightly raised with 2 (1+1) tubercles touching the anterior concave margin.

M e t a n o t u m : Formed by 2 (1+1) plates of rhomboid shape, lateral margins excavated anteriorly to accommodate the prominent and dorsally visible metapleural scent gland canals, followed by a knob like tubercle, then the margin is sinuate and converging posteriorly. Disk slightly elevated.

A b d o m e n : Mtg I-VI fused, forming the tergal plate, however the fusion line of Mtg I-II is visible as a distinct sulcus, interrupted only at middle. Disk flat, somewhat raised along midline, abdominal scent glands strongly displaced posteriorly on Mtg III-V. Deltg I+II fused, triangular; posterolateral angles of Deltg V-VII progressively protruding and angularly rounded.

V e n t e r : Structures as described for the genus.

M a l e g e n i t a l i a : Pygophore large, fig. 14-15; parameres bilobate anteriorly, inner face excavated and pilose with two thin transverse ridges, fig. 9-11.

F e m a l e : Of larger size, abdomen more rounded than in male, tergite VIII wide, lateral projecting lobes with spiracles VIII as long as the tricuspidate tergite IX. Spermatheca as fig. 12.

M e a s u r e m e n t s : Length 4.6 mm; width pronotum 1.4 mm; width mesonotum 1.55 mm; length of antennae 1.97 mm, ratio antennae / width of head 2.19. Variation of length in paratypes ♂: 4.45-5.0 mm. Paratypes ♀: Length 5.3-6.1 mm.

E t y m o l o g y : Named for the long and distinct pilosity of the antennae.

R e m a r k s : *Jacobsapta pilicornis* spec. nova was found together with *Mauricicoris dilatatus* spec. nova on decaying wood in indigenous evergreen forest patches.

Acknowledgements

My thanks are due to L. Hoberlandt (Prague) for the opportunity to study his material on which his descriptions of Mascarene Aradidae were based and to D.H. Jacobs (Pretoria) for the photographs.

Zusammenfassung

Die bisher bekannte Aradidenfauna der gebirgigen vulkanischen Mascareneninseln Mauritius, Reunion und Rodrigues ist entgegen den Erwartungen von tropischen Eilanden, sehr gering. So sind von Mauritius nur 4 Arten aus 3 Gattungen gemeldet, wovon jedoch 2 Arten als endemisch für die Insel angesehen werden, von den beiden anderen Inseln noch weniger (zum Vergleich: Madagascar 60 Arten aus 24 Gattungen). Der Grund liegt primär in der fast vollständigen Abholzung der indigenen immergrünen Wälder, welche in Mauritius und Rodrigues heute nur mehr in kleinen Restflächen vorhanden sind. Dort konnte der Verfasser eine neue mikroptere und eine ebenfalls bisher unbekannte neue aptere Gattung mit je einer Art aufsammeln, welche in der vorliegenden Arbeit beschrieben und abgebildet werden.

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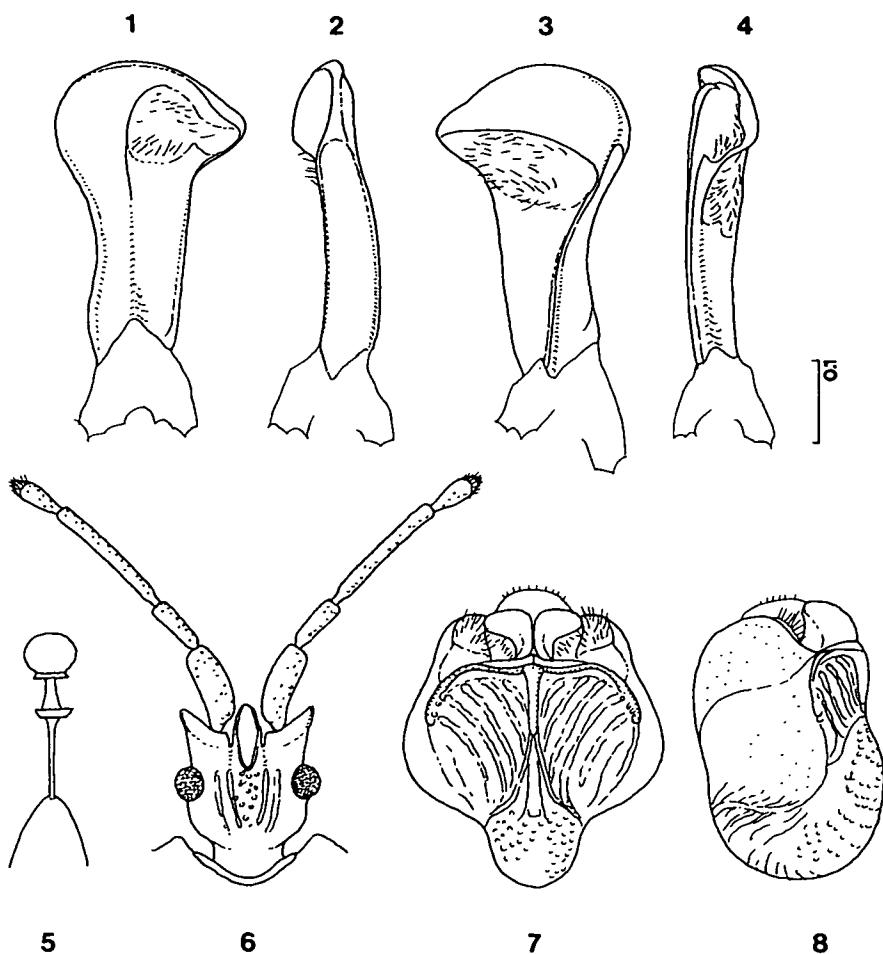


Fig. 1-8: *Mauricicoris dilatatus* gen.nov., sp.nov. 1-4 – left paramere in different positions (1 ventral view); 5 – spermatheca of female; 6 – head; 7-8 – pygophore dorsal and lateral view. Scale for fig. 1-4 0.1 mm.

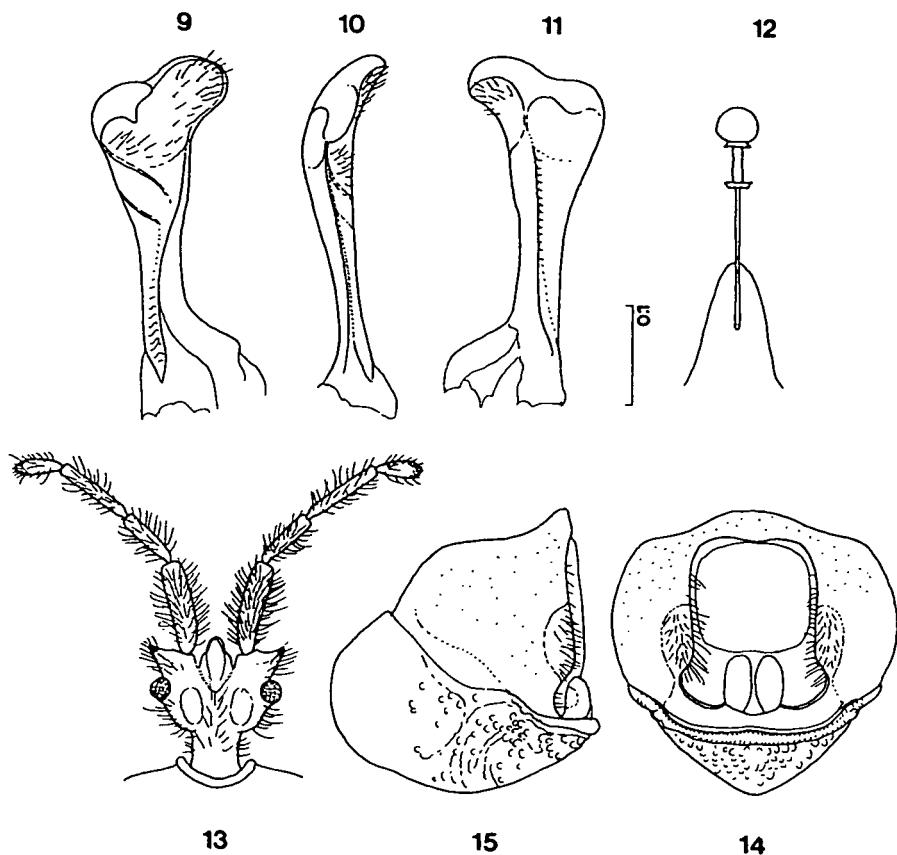
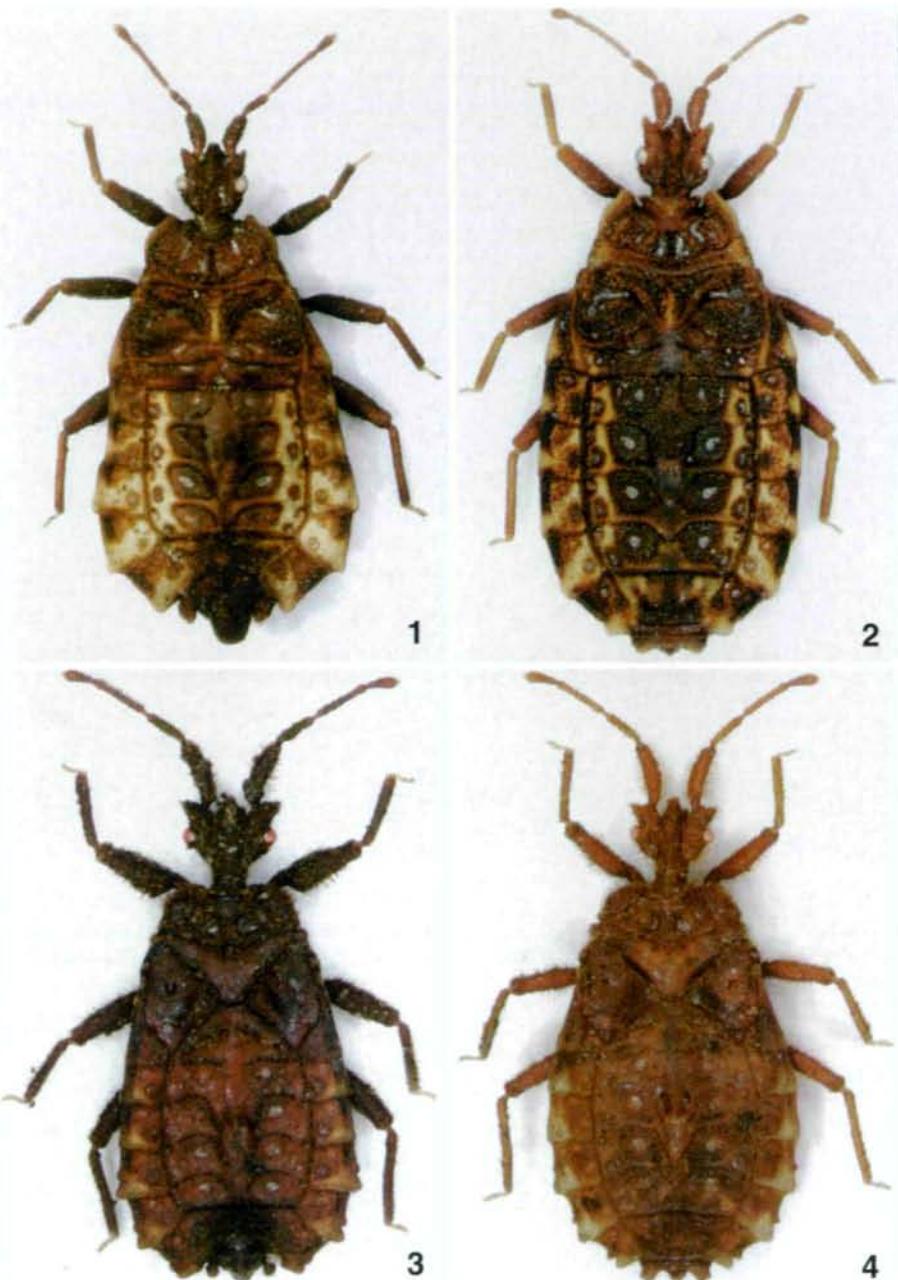
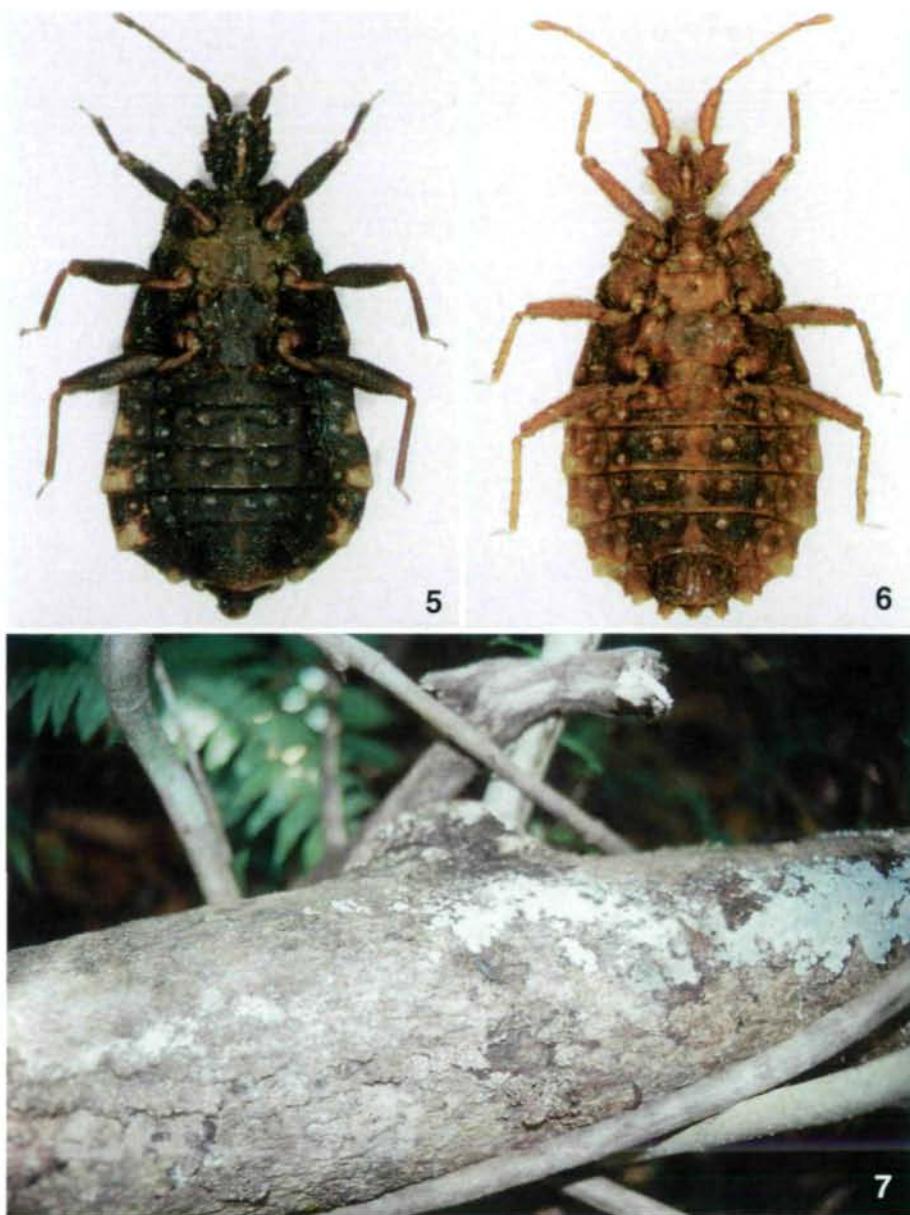


Fig. 9-14: *Jacobsaptera pilicornis* gen.nov., sp.nov. 9-11 left paramere in different positions (9 ventral view); 12 – spermatheca of female; 13 – head; 14-15 – pygophore dorsal and lateral view. Scale for fig. 9-11 0.1 mm.



Photos 1-4: 1 – *Mauricicoris dilatatus* gen.nov., sp.nov., male paratype, dorsal view; 2 – ditto female paratype, dorsal view; 3 – *Jacobsapta pilicornis* gen.nov., sp.nov., male paratype, dorsal view; 4 – ditto female paratype, dorsal view.



Photos 5-7: 5 – *Mauricicoris dilatatus* gen.nov., sp.nov., male paratype, ventral view; 6 – *Jacobsaptera pilicornis* gen.nov., sp. nov., female paratype, ventral view. 7 – Log of a leaf tree infested by fungi, habitat of both new genera.